REMARKS/ARGUMENTS

Brief Summary of Status

Claims 1-24 are pending in the application.

Claims 1-24 are rejected.

35 U.S.C. § 103 (starting page 2 of office action)

The Examiner asserts:

"Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cherubini et al (US Patent Number 6,741,551) in view of De Gaudenzi et al (US Patent Number 7,123,663)." (hereinafter referred to as "Cherubini" and "De Gaudenzi", respectively)(non-final office action, Paper No./Mail Date 20070428, p. 2)

The Applicant respectfully traverses.

The Applicant has amended certain of the claims.

The Applicant respectfully asserts that no new matter is introduced by the amendments made herein to the claims.

Within the Applicant's originally filed U.S. utility patent application (including specification/written description and figures), at least within the specification on page 26, lines 6-20, the Applicant provides support for the subject matter of rearranging the order of the encoded bits output from the encoder.

The Applicant respectfully asserts that the combination of Cherubini and De Gaudenzi fails to teach and disclose each and every element of the subject matter as claimed by the Applicant in independent claims 1 and 13.

The Examiner asserts:

"Cherubini et al. discloses all of the subject matter as described above except for specifically teaching encoding a plurality of information bits, thereby generating a sequence of discrete-valued modulation symbols.

However, De Gaudenzi et al., in the same field of endeavor, teaches encoding a plurality of information bits, thereby generating a sequence of discrete-valued modulation symbols (figure 11, Trellis Encoder)." (non-final office action, Paper No./Mail Date 20070428, p. 3, emphasis added)

The Applicant is unable to find any indication that any re-ordering and/or rearranging of the order of encoded bits output from the "figure 11, Trellis Encoder" of De Gaudenzi. Considering FIG. 11 of De Gaudenzi, it appears that the output from the "Trellis Encoder" therein is passed directly to the "Mapper" without any rearranging and/or re-ordering of the order of encoded bits output from the "figure 11, Trellis Encoder".

A relevant corresponding written description portion of the Examiner-cited FIG. 11 of De Gaudenzi is provided here, in which De Gaudenzi teaches and discloses:

"The performance of the 4+12-APSK modulation scheme will first be considered when used with trellis coding. FIG. 11 shows a block diagram of the end-to-end TCM system under consideration. The binary information data bits b.sub.k at rate R.sub.b enter a serial-to-parallel device S/P generating three parallel streams at rate R.sub.b'=R.sub.b/3. The rate r=3/4 trellis coder generates four parallel binary symbol streams at rate R.sub.s=R.sub.b'/(r log.sub.2M) that are mapped through an Ungerboeck mapper to the 16-ary constellation generator. The I-Q multilevel digital pulse stream is then passed to the two baseband SRRC filters and I-Q modulated at RF. In case of the non-linear channel, the passband real signal then drives the HPA. Addictive White Gaussian Noise AWGN representative of the downlink satellite channel is then added." (De Gaudenzi, column 13, line 63 to column 14, line 10, emphasis added)

There does not appear to be any indication of any indication that any re-ordering and/or rearranging of the order of encoded bits in this portion of De Gaudenzi.

In another portion of the office action, the Examiner asserts:

"Cherubini et al. discloses all of the subject matter as described above except for specifically teaching:

encoding a subset of information bits of the plurality of information bits into a plurality of encoded bits; and mapping the plurality of encoded bits and at least one uncoded information bits into a plurality of modulation symbols according to a symbol constellation and a corresponding mapping function, thereby generating the sequence of discrete-valued modulation symbols.

However, De Gaudenzi et al., in the same field of endeavor, teaches encoding a subset of information bits of the plurality of information bits into a plurality of encoded

bits (figure 11, Trellis Encoder); and mapping the plurality of encoded bits and at least one uncoded information bits into a plurality of modulation symbols according to a symbol constellation and a corresponding mapping function, thereby generating the sequence of discrete-valued modulation symbols (column 14, lines 2-7)." (non-final office action, Paper No./Mail Date 20070428, p. 6, emphasis added)

This Examiner-cited portion of De Gaudenzi [i.e., (column 14, lines 2-7)] is included in the larger portion of De Gaudenzi that is cited above by the Applicant.

The portion of "(column 14, lines 2-7)" is also specifically provided below:

"... parallel streams at rate R.sub.b'=R.sub.b/3. The rate r=3/4 trellis coder generates four parallel binary symbol streams at rate R.sub.s=R.sub.b'/(r log.sub.2M) that are mapped through an Ungerboeck mapper to the 16-ary constellation generator. The I-Q multilevel digital pulse stream is then passed to the two baseband SRRC filters and I-Q modulated at RF. In case of the non-linear channel, the passband real signal then drives the HPA. Addictive White Gaussian Noise AWGN representative of the downlink satellite channel is then added."

Within this Examiner-cited portion of De Gaudenzi, there does not appear to be any teaching and disclosure of mapping any uncoded bits into a plurality of modulation symbols according to a symbol constellation and a corresponding mapping function, thereby generating the sequence of discrete-valued modulation symbols.

Moreover, within this Examiner-cited portion of De Gaudenzi, there does not appear to be any teaching and disclosure of mapping the plurality of encoded bits and at least one uncoded information bits into a plurality of modulation symbols according to a symbol constellation and a corresponding mapping function, thereby generating the sequence of discrete-valued modulation symbols.

The inclusion of both the plurality of encoded bits and at least one uncoded information bit does not seem to be within the teaching and disclosure of the Examiner-cited portion of De Gaudenzi.

The Applicant respectfully believes that this Examiner-cited portion of De Gaudenzi does not appear to be teaching all of the limitations of the Applicant's claimed subject matter of "encoding a subset of information bits of the plurality of information bits into the plurality of encoded bits; and mapping the plurality of encoded bits and at

least one uncoded information bits into a plurality of modulation symbols according to a symbol constellation and a corresponding mapping function, thereby generating the sequence of discrete-valued modulation symbols."

As such, the Applicant respectfully asserts that combination of Cherubini and De Gaudenzi fails to teach and disclose each and every element of the subject matter as claimed by the Applicant in independent claims 1 and 13.

In view of at least these comments made above, the Applicant respectfully believes that independent claims 1 and 13 are patentable over Cherubini in view of De Gaudenzi.

The Applicant respectfully believes that the dependent claims within claims 1-24, being further limitations of the subject matter as claimed in independent claims 1 and 13, respectively, are also allowable.

As such, the Applicant respectfully requests that the Examiner withdraw the rejections of claims 1-24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Cherubini in view of De Gaudenzi.

The Applicant respectfully believes that claims 1-24 are in condition for allowance and respectfully requests that they be passed to allowance.

The Examiner is invited to contact the undersigned by telephone or facsimile if the Examiner believes that such a communication would advance the prosecution of the present U.S. utility patent application.

RESPECTFULLY SUBMITTED,

By: /SXShort/ Reg. No. 45,105

Shayne X. Short, Ph.D., Reg. No. 45,105
Practitioner associated with USPTO CN 51,472
Direct Phone: (512) 825-1145
Direct Fax No. (512) 394-9006

GARLICK HARRISON & MARKISON
ATTORNEYS AT LAW
P.O. BOX 160727
AUSTIN, TEXAS 78716-0727
TELEPHONE (512) 825-1145 / FACSIMILE (512) 394-9006 OR (512) 301-3707